

IN THE CLAIMS

Upon entry of the present amendment, the status of the claims will be as is shown below. This listing of claims replaces all previous versions and listings of claims in the present application.

1-12 (Canceled)

13. (New) A phase offset calculation circuit, comprising:

a sign inversion circuit that performs a sign inversion of input signed binary data to a phase offset θ ($\theta=90x+y$: $x=0, \pm 1, \pm 2, \pm 3, \pm 4$, $0 < y < 90$);

an amplitude adjustment circuit that adjusts the amplitude of the phase offset signal after the sign inversion; and

a phase offset circuit that performs a phase offset calculation smaller than 90° with the signal output from the amplitude adjustment circuit.

14. (New) A signal point mapping circuit for mapping a QPSK modulation signal in a phase space, comprising:

a sign inversion circuit that performs a sign inversion of the QPSK modulation signal to a phase offset of a multiple of 90° ;

an amplitude adjustment circuit that adjusts the amplitude of the signal output from the sign inversion circuit and outputs a phase offset signal; and

a phase offset circuit that performs a phase offset calculation smaller than 90° with the phase offset signal output from the amplitude adjustment circuit.

15. (New) The signal point mapping circuit according to claim 14, said phase offset circuit comprising:

a fixed phase offset circuit that provides a predetermined amount of a fixed phase

offset,

wherein said phase offset circuit decides whether to provide the phase offset to an input signal with the fixed phase offset circuit, and

wherein said phase offset circuit controls a total phase offset amount with the phase offset implemented by the sign inversion circuit to become a desired offset amount.

16. (New) A CDMA transmission apparatus for controlling the phase and amplitude of a transmission signal by closed-loop control, comprising:

a signal point mapping circuit having:

a sign inversion circuit that performs a sign inversion of the QPSK modulation signal to a phase offset of a multiple of 90°;

an amplitude adjustment circuit that adjusts the amplitude of the signal output from the sign inversion circuit; and

a phase offset circuit that performs a phase offset calculation smaller than 90° with the phase offset signal output from the amplitude adjustment circuit; and

a transmission controller that provides control information to the signal point mapping circuit based on a message included in a reception signal from the other end of a communication.

17. (New) The CDMA transmission apparatus according to claim 16,

wherein said phase offset circuit comprises a fixed phase offset circuit that provides a predetermined amount of a fixed phase offset, and determines whether to provide the phase offset to an input signal based upon the control information of the phase offset circuit.

18. (New) The CDMA transmission apparatus according to claim 16,

wherein control of the phase and amplitude can be performed for every transmit channel.

19. (New) The CDMA transmission apparatus according to claim 17, wherein control of the phase and amplitude can be performed for every transmit channel.

20. (New) A transmit diversity method that implements closed loop transmit diversity for controlling the phase and amplitude of a signal transmitted from an antenna based on a message from an other end of a communication, the method comprising:

performing a sign inversion of a QPSK modulation signal to a phase offset of a multiple of 90°;

adjusting the amplitude of the signal after the sign inversion;

performing a phase offset calculation smaller than 90° with the signal after the amplitude adjusting; and

controlling the phase and amplitude of the transmission signal.